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Art. I. — Sketches of Hofwyl. Letter III.

My Dear Friend — It is a principle so generally admitted that it seems almost trifling to mention it, and yet it is one, the thorough execution of which forms the most striking peculiarity of the Fellenberg institutions, that a child should never be employed in exercises which are beyond his powers, whether physical, intellectual, or moral.

In regard to physical education, the truth of this remark is generally felt as well as conceded, and it is considered cruel to require of the child what demands the vigor of later years. Still it is too often strangely violated. It is frequently forgotten by parents and masters, that too long a continuance of a particular kind of labor, when the tender frame is just developing itself, and yields to every impression, is not less injurious than violent exertion. It is entirely left out of view both by the poor and the rich, that the confinement of the active body of the child for hours in succession to a single posture, and above all to that of the school bench, is as really doing violence to it, as if it were

called to excessive exertion. The limbs are often more enfeebled by imprisonment than by extreme labor.

So with regard to intellectual efforts; if the capacity be wanting to obtain a given kind or degree of knowledge, to attempt to force it upon a pupil will only expose his defects, render him a mechanical, and often a ridiculous imitator of others, and waste the time in which the faculties he possesses might be developed in a higher degree. To use the words of Fellenberg himself; 'It is folly to attempt to bring down to the level of a child's capacity what presupposes the intelligence of manhood, or to make an immature mind pursue the train of thought of the greatest men, as is often done in our classical and scientific schools. The infantile conceptions of great objects which are thus produced, are, in effect, an obstacle to its improvement; and the important lessons to be learned from antiquity are thus debarred all access to the comprehension of the cultivated youth, and the feelings of the mature man.'

In accordance with this principle, the pupils are classified in the institutions of Hofwyl, not according to their age or the period of their arrival, or the amount of their acquisitions, but according to their maturity of mind and capacity for improvement. To pursue another course is to produce discouragement in the more backward, and weariness in those more advanced. It leads both to indolence, and often excites bad passions.

It is for this reason that in the institution for the higher classes, the number of instructers is multiplied far more than in other institutions. For eighty pupils, twentyfour persons are employed in giving lessons. In the institutions for the poor, the same object is effected by employing the more advanced pupils in the instruction of the feebler.

For similar reasons the state of the classes is constantly observed, and changes made whenever circumstances require it. If there be a pupil who cannot maintain his station without too great efforts, he either receives aid in private or is transferred to a class corresponding to him in force. If another is found to advance more rapidly than his fellows, he is placed in a class more advanced, or additional employment is given him of another kind. If neither of these expedients answers, a particular course of lessons is provided for his improvement. In short, the great object is not to preserve an arbitrary order of studies or number of classes, or to employ an assignable number of instructers. He deems it the first, the indispensable duty of the educator,

who takes upon himself the charge of a pupil, to provide at all hazards for the welfare *of the individual;* to furnish him intellectual, as well as physical nourishment, of such quantity and kind, as his circumstances require, or if he find it impracticable in a given case, to resign the charge.

He deems it in the same view of great importance that the development should not be pushed on too rapidly, and it was remarked to me by a person who had long observed the institutions, that one of those circumstances which distinguished Fellenberg from other educators was, 'that he knew how to wait,' and did not sacrifice the future to the present.

The success of efforts to produce premature sages, is often only apparent. It may produce a temporary excitement, which will enable them to shine, and to reflect great honor on the establishment, but like the paroxysm of a fever, it will be followed by a corresponding relapse. If our success is real, we shall only attain it at the expense of other faculties, by concentrating the vigor, destined for the gradual development of all, upon a single one; or what is not less ruinous, by destroying that physical force which is necessary to enable the pupil to enjoy and use his acquisitions, and entailing disease or debility which disqualify him for every species of useful effort, or render his life a series of sufferings.

Nothing is more common than the remark, that early precocity is followed by mediocrity or inferiority in later years, and almost all of those prodigies of childish intelligence which have excited astonishment and admiration, have usually, in later periods, disappointed the hopes entertained concerning them, and have seldom risen above the level of these infantile acquisitions. Still more frequent are the examples of premature death, or a debility even more distressing to the subject and to his friends—which adds another to the burdens of society, instead of furnishing it with an active, useful member.

But in addition to this, the nervous irritability produced by this excessive application, or by even the ordinary development of the intellectual powers without a corresponding attention to the body, is extremely dangerous to the moral character in many respects. It produces a selfishness, a devotedness to our own occupations and success, utterly at variance with Christian benevolence. It renders one impatient of those interruptions which duty to others demands, and it excites all the passions and appetites, both physical and moral, in an undue degree.

Pascal and Pope both displayed astonishing precocity — the former never enjoyed a day's health; the latter exhibited a melancholy example of personal deformity, and mental irritability.

I cannot but regard it as one of the most honorable trophies of Hofwyl, that it has rescued more than one youth who was on the borders of physical or moral destruction from these causes, and thus not only merited the civic crown, but what is more important, established the possibility and indicated the methods, by unwearied vigilance and perseverance in the use of simple, energetic means, of saving those whose health was ruined.

It is of no less importance that the moral development of the pupil should not be pushed too rapidly. In general, faults established by long habits or strong propensities, cannot be suddenly corrected without violent means. A change thus produced, is often followed by a powerful reaction, and can seldom be radical or permanent. Such indeed is not the usual mode of operation of Divine Providence, which leaves us to learn wisdom by a series of failures. On this subject Fellenberg remarks:

'We should never forget, in the performance of our task, that every right course in life is surrounded by a million of possible wrong ones; that in an institution for education, we have to do with uneducated persons. We should remember that in many cases the inevitable necessity of nature requires that we should be taught how to walk by a succession of falls.'

Above all, puerile follies and faults must be patiently endured and mildly treated, until the pupil acquires that perception of their impropriety, and that power of self-restraint, which results only from age. We perceive at once that the infant of a few days is not culpable for the excessive indulgence of its appetite, or other animal propensities, because we perceive that its reason has scarcely begun to operate. But we too often forget that the child and even the youth, is but an infant a little more developed; that reason can only judge and act from experience, and that its influence over the active propensities is only the result of habits slowly and painfully established, and which in the full maturity of our faculties and age is scarcely sufficient for our own government.

The example of our Saviour himself, in the education of his disciples, teaches us the importance of applying this principle both to intellectual and moral subjects. How grossly erroneous were their ideas in reference to his character and destination

— how childish and unworthy their plans, and their contests. And yet with what slowness did he unfold the great truths, he came to reveal — how much did he leave to be learned after his death, — with what gentleness did he tell them, 'I have many things to say unto you, but ye cannot bear them now,' — with what patience did he bear with their errors, their follies, and their sins — with what mildness did he generally reprove them. Let the educator beware that he does not attempt to be wiser than his master, and teach truth and demand efforts for which the infant mind is too feeble.

Art. II. — On the Philosophy of Language. By T. H. Gallaudet.

[Continued from page 77.]

Let us try one more experiment, to see if it will not lead to the same general principles with those which have already been laid down, with regard to the mode in which the import of language is acquired. Take the term 'immaterial.' How will you convey the meaning of this term, which perhaps is as difficult as any of an intellectual nature to a child, or, in fact, to any person who is entirely ignorant of its import. Perhaps, as is the usual most unphilosophical course, in such a case, you will sagely refer him to the dictionary, and that he may have the best light on the subject, to the prince of lexicographers, Johnson. 'Immaterial,' he finds, means, 'incorporeal; distinct from matter; void of matter.' But he is still in the dark; what is 'incorporeal,' and what is 'to be distinct from matter?' This definition may do very well for a philosopher, who is already in possession of those elements of thought which, when combined in a certain form, are expressed by the term 'immaterial.' But it is those *very elements of thought* combined in such a form, of which the child is in search, and a Greek definition would help him just as well to find them as the English, of the terms of which he is still ignorant. Some other mode of explanation must be resorted to. The following appears to be the only natural and intelligible one; and observe, as we pursue it, how an address is, all along, made to *some one of the bodily senses*

of the child, and in this way, eventually, *to his own consciousness of the operations, affections, and states of his own mind*, thus confirming the positions which have heretofore been laid down.

'Touch this stone, it is hard; this sponge, it is soft; this ice, it is cold; this stove, it is hot; this file, it is rough; this rose leaf, it is smooth. What you can touch is matter. See that cherry, it is red; that orange, it is yellow; that fire, it is bright; that cloud, it is dark; that pole, it is long; that pin, it is short; that door, it is wide; that trunk, it is deep. What you can see is matter. Smell this pink, it is sweet; that sulphur, it is disagreeable. What you can smell is matter. Taste this apple, it is sweet; this lemon, it is sour; this wormwood, it is bitter. What you can taste is matter. Those things which you can touch, see, smell, and taste, are *material*.'

Thus far, at least, it will be admitted that our explanation has proceeded, by presenting to the consideration of the child objects which are addressed to his bodily senses.

'Observe me attentively; I am thinking about something which I am going to write on this paper. See *how I look* while I am thinking. There, I have written it on the paper. Read it. Now do you think, and tell me what I shall write. Well, I have written it. Observe me, I will think again. Of what am I thinking? You do not know. You cannot touch my thought. It is not like the stone, the sponge, the ice, the stove, the file, or the rose leaf. It is not hard, soft, cold, hot, rough, or smooth. It is not material. Neither can you see my thought; it is not red, yellow, bright, dark, long, short, wide, or deep. It is not material. Neither can you smell, or taste my thought, it is not material.'

Now if the child had not *seen an actual exhibition of thought*, by its effects upon the human countenance, and its result by noticing the expression of thought in writing on paper, and thus had *his own consciousness excited of his own act of thinking*, what conception could he possibly have formed of the term 'thought?' And if he had not had the explanation of the term 'material' made to him, by addressing his bodily senses, how could he be led to the consideration of the entire dissimilitude between 'thought' and 'matter;' how could he be taught that 'thought' is not material? Other modes of illustration might doubtless be adopted, but pursue them if you can, without addressing the bodily senses and without exciting in the child the

consciousness of his own acts of mind by means of effects and results which are also addressed to the bodily senses, and the positions laid down will be acknowledged to be untenable.

'You have seen, my child, that thought is not material; in other words, it is immaterial. That something within you that thinks, is called *the soul*. The soul is immaterial.'

The same mode of illustration might he pursued with regard to all the operations, affections, and states of the soul, and thus the child would be brought to compare these operations, affections, and states with the various properties and qualities of matter, and to see how totally they are unlike each other, and that to express this dissimilitude we apply the term 'material' to the one, and the term 'immaterial' to the other. And this is about all the greatest philosopher knows of this subject. An objection may be raised to the correctness of some of the preceding remarks, from the fact, that persons born blind acquire a knowledge of language without any aid from visible objects. But in their case the sense of feeling supplies the place of that of sight. The process is the same, through the medium of a different sense. This is so obvious with regard to all sensible objects and their qualities, that it hardly needs illustration. How, for instance, could a blind person be taught the meaning of the various terms used to denote the articles of furniture in a house, if he had not felt the substance, shape, and structure of these articles? It is true, he may be taught the substance, shape, and structure of things which he has never felt; but this must be done by using such terms in the description of them as he has before learned by hearing them applied to objects with which he has been made familiar by the sense of feeling. With regard to intellectual objects, it will still be found, by a careful analysis, that the person born blind acquires the import of the terms used to denote them, by a process similar to that before described in the case of a person who sees; that is, by an address to some one of his bodily senses, and, in this way, eventually, to his own consciousness of the operations, affections, and states of his own mind. To illustrate this, let us take the same term which was before used, 'immaterial.' Our object now is to convey its import to a child born blind. We first direct his attention to the qualities of such objects as he can touch, smell, and taste, and tell him that such objects are called 'material.' What remains is to excite his consciousness of the operations of his own

mind. This must be done by exhibiting to him through the medium of some of his bodily senses, the effects and results of these mental operations.

'Smell this rose, my child, which I hold in my hand. I am thinking to whom I will give it. There, I have given it to your sister. Taste this apple. To whom will you give it? You say to your brother; well, he has it. Touch this money. I am thinking what I will do with it. Do you know what I am thinking I will do with it? No; for I have not told you. You cannot smell, taste, or touch my thought. It is not sweet like the rose, or sour like the apple, or round like money. Thought is not like any thing which you can smell, taste, or touch. It is not "material." In other words, it is "immaterial." That something within you, that thinks, is called the soul. The soul is "immaterial."'

Observe, that the first illustration of the act of thinking, by its effect and result, is that of giving a rose to the sister of the blind child. This illustration would have been impracticable, if he had not known the import of the words, 'give,' 'rose,' and 'sister.' The meaning of these words, it will easily be seen he originally acquired through the medium of his bodily senses. Just as in the former case of the child who could see, a similar illustration of the effect and result of thinking, was that of writing words on paper, which was a visible illustration, the objects employed and the action itself being addressed to the sense of sight.

Those who are familiar with the power and use of language may, doubtless, acquire new complex ideas, by means of mere definitions, or descriptions; but the terms employed in these definitions and descriptions, or the terms used to define and describe these latter terms, and so on, must originally have derived their import, if material, from *something immediately affecting the bodily senses*, and if intellectual, *from the consciousness of the individual of the operations, affections, and state of his mind produced by illustrations derived from objects and actions addressed to some one of his bodily senses.* To pursue our inquiry still further, not only are the terms expressive of simple ideas, whether relating to material or intellectual objects, dependent, for their import, on illustrations addressed to the bodily senses; but the elements, also, of the grammatical structure and idioms of a language can be acquired only in the same way. A child

may, at different times, learn the import of the words, 'I,' 'go,' and 'door;' and yet the phrase, 'I go to the door,' would be unintelligible to him, unless accompanied with the action itself of going to the door. 'If you touch that candle, I will whip you.' With the exception of the word 'if,' the child might know the import of all the words in this phrase, and still the phrase itself would be unintelligible, unless accompanied with the attempt of the child to touch the candle, and the forbidding and threatening look and action of the parent; and it is this combination of visible circumstances, under this peculiar form, which enables the child to have any conception, though probably, at first, a very imperfect one, of the import of the word 'if,' and of the peculiar structure of those sentences in which it is employed. It is by the frequent repetition of such phrases, accompanied by illustrations addressed to his bodily senses, that he at length acquires, not only the elements of the arrangement of words into sentences, but also the import of the articles, pronouns, adverbs, prepositions, and conjunctions of a language, and the various inflections of those parts of speech which are subject to them.

How complex is the machinery of language. How mighty its power. The tongue of the orator wields the destiny of a nation. Yet the eloquence which he utters, and its effects upon those who hear it, depend on principles simple as the talk of the nursery, and the thoughts of a little child! Nay, on the same principles depends all that we know of that Being who formed us, and the destiny of that mysterious spirit within us which is to live forever; for what should we know on these subjects without revelation, and how could God himself, — with reverence be it spoken, — have made a revelation to us, but *in the language of man?*

No one can be a profound linguist, without a thorough acquaintance with the philosophy of the human mind. I do not mean by this, that he must have read all that has been written on this subject, or be familiar with all the technicalities of this branch of science. But he must have attentively noticed, accurately analyzed, and well understood the operations, affections, and states of his own mind. Else, how will he comprehend the true import of those numerous intellectual terms in all languages, the explanation of which, as we have seen, eventually depends upon our own consciousness. He finds these terms referring to the workings of other minds; but what does he

know of other minds, only so far as he is acquainted with his own? He may give very subtle and learned definitions of these terms; but what is this, but ringing changes upon words, if he understand not the elements of which his definitions are composed. He may know all the curious points and difficulties of grammatical construction, and talk profoundly about the agreement and government of words, and explain all the joints which bind sentences together, and all the pivots on which they turn, and yet be grossly in the dark with regard to *the true import* of these words, and *the exact train of thought* which these sentences are intended to convey. Nay, he may translate from one language into another with great skill and even elegance, and yet be very ignorant of both.

Paradoxical as the latter assertion may seem, it can easily be shown to be true. A school-boy may translate 'Quousque tandem abutêre, Catilina, patientiâ nostrâ?' and tell you very fluently, that it means, 'How long, Catiline, wilt thou abuse our patience?' But are you sure that he knows accurately the import of 'patientiâ' in Latin, or 'patience' in English, or the true meaning of the phrase 'to abuse patience?' Question him and see, and perhaps you will find that he is, to say the least, a good deal ignorant of both, and that most of his knowledge consists in ascertaining from his dictionary, that 'abutêre' means 'to abuse,' and that, with the addition of 'patientiâ nostrâ,' the phrase must mean 'wilt thou abuse our patience?' The fact is, there is a great deal in the mere grammatical structure of language which is purely mechanical. And the pupil, by the help of the definitions in his dictionary, from which he learns what words in English correspond to certain words in another tongue, and of the rules in his grammar, which explain to him the dependences of these words on each other, may make out what would be called an excellent translation, and still enter very little into the true spirit of the author, and often be quite in the dark with regard to the ideas which are intended to be conveyed.

How many parrot-talkers there are in the world, who, by mingling with those who *think before they speak*, catch their phraseology, and then, to the amazement of thousands, speak ever so fluently without the pain of thinking. By the power of imitation, from the force of habit, or the principle of association, one may learn to combine words together very dexterously, to use high-sounding epithets, and to model sentences wrought up to the highest degree of elegance, and yet neither the author nor

the reader be a whit the wiser for what is written; a very pretty pageant, save that you cannot discover its design; a sort of rareeshow, in which the characters concerned are very great, you are told, but very mysterious personages.

Art. III. — Jacotoian System of Instruction.

My Dear Friend — In my former letter, I observed that the great object of Jacotot's efforts is 'Universal Emancipation' from the degrading thraldom of depending on other men for that knowledge which he deems equally accessible to all, either in nature or through the medium of books.

It is particularly important in this, as in every other system of instruction, to distinguish carefully between the *principles* adopted, and the *methods* which are prescribed for applying them. Injustice is often done by condemning both for the errors of one. Many a man is capable of discovering and exhibiting important principles, who has not the skill or experience to apply them; and there are those whose experience has led them to adopt methods deserving the imitation of men whose speculative views are far superior. I would gladly refer you to the works of Jacotot, or furnish you a translation of them, as an exhibition of these principles, but they are so often obscured by diffuseness, and digression, and paradox, that I believe you will derive more satisfaction from the following account which I received from his own lips. I inquired, How would you direct a pupil to learn according to your method? The following is, in substance, his reply, in which I have retained his abrupt and peremptory style, and have omitted more than one of the appeals which his enthusiasm leads him to employ in support of his sentiments.

'Should any one come to me to learn, I would tell him — You believe that you can learn nothing without the help of others. How did they acquire their knowledge? By the use of their senses in examining the objects around them — and by the aid of books. The same objects and the same books, (or those which they prepared from them) are within your reach. You have the same senses and intellect. You have only to make as good use of them. I can teach you nothing that you

cannot learn yourself. Shame on you to depend on others for what you can do alone ?'

1. '*Resolve to learn something without assistance.*

2. 'You may begin with what you please, and with any part of the subject which you prefer. Nothing is easy — nothing is difficult. All is difficult to the will — all is easy to the intelligence.

3. "*Believe that you can learn* what you resolve to learn. The *first* artists and learned men had no teachers; and many since have attained the highest eminence without aid. What man has done, man can do. All that is necessary is attention and resolution.

4. 'To emancipate yourself, the *thing learned* is not important. The *manner of learning* is essential.

5. 'Rivet your attention upon what you are to learn.

6. 'Learn it thoroughly, so that every part of it may be *present to the mind;* so that you may *recall it without hesitation;* that you may *refer to it with absolute certainty.*

7. 'REFER ALL THAT YOU LEARN TO THIS. COMPARE ALL WITH THIS.

8. 'Be not discouraged if you do not understand at first. Review and repeat again and again what you learn, and you will gradually understand more and more.

9. 'Do not despise this as mechanical knowledge. The greatest philosopher first learns a subject or an object mechanically, examines all its parts, and then attempts to reason about it. "Avant de comprendre le soleil il faut l'apprendre."* To reason earlier, is to reason prematurely, and to this are due many of the received errors. The subject is decided on before it is thoroughly learned. Sir Isaac Newton said he made his great discoveries merely by *thinking about them.*

10. 'To learn by heart is nothing. It is mere *knowledge* — mere mental perception. We cannot help perceiving unless we shut our eyes. To *use* this knowledge is *intelligence.*

11. 'Commence with the *whole,* and not with the parts.

12. 'Examine it on *all sides,* in *all relations.* When you have thoroughly learned the whole, examine the *parts.* Analyze forms and sounds and ideas, everything which belongs to it, and classify them.

13 'In music and oral language, employ your master as you do a musical instrument — as the machine, the book from

* Before *understanding* the sun you must *learn* the sun.

which you are to learn what cannot be written. Imitate him precisely. Observe and compare his tones with yours, correct where you find them vary. Repeat the same tones day after day, until you can perceive no error.

14. 'In design or description observe the object. Describe or draw it. Review what you have done. Observe the defects. Correct, observe, and describe or draw again until you can satisfy yourself.

15. 'In learning a language, observe in the same way the words and expressions used by the best writers in that language. When you have the *same ideas* to express, employ the *same words* in the *same form* and the *same order*, and you cannot but write correctly. There is no other rule for correctness in language, but those derived from its writers and speakers, and if you read good writers you will imitate and practise on these rules.

16. 'Compare the writer with himself. Observe how he employs new words, or how he varies the form and order of words, according to the sense. Draw out from them a scheme of forms or a set of rules. If you prefer it, begin with the grammar. But make yourself master of the principles, and especially verify them all by comparing them with an author.

17. 'In studying any author, learn first what he says on the subject perfectly. Reflect on it. Compare one part with another. Examine for yourself. Write his views and your own reflections. *Verify* them by comparing and re-examining. Thus you will become acquainted with the subject and with the art of writing and reasoning.'

Hereafter I will give you his maxims for teachers.

Yours, &c.

Art. IV. — American Forest Trees.

[We are gratified with an opportunity which the following communication affords, of calling the attention of teachers to an important subject of instruction, completely within the reach of every one, and highly practical, and yet strangely neglected.]

The subject of Natural History, as a branch of *common education*, has recently been discussed before several conventions of teachers, where it was uniformly, and warmly recommended. It is already introduced into infant schools, where it is a prominent and delightful subject, and the way seems to be

fast preparing for its introduction into district and other common schools.

Geology, which was lately unknown in our colleges, is now taught in numerous schools in various parts of the country, where it is a subject of delightful amusement, no less than of useful knowledge. Children, almost immediately after the subject is introduced to them, become as familiar with the names, ingredients, properties and uses of all the rocks around them, and with many other minerals, as they are with the common articles of table furniture. Their pockets, shelves, and chambers, which are soon loaded with specimens, afford the most satisfactory proof of their industry, as well as of their interest and knowledge in this practical science.

The researches of these young explorers have not unfrequently been rewarded with valuable discoveries, not merely to enrich their collections, but to increase the wealth of the country, and to advance the useful arts.

Botany has, for years, been more or less a subject of instruction, especially in female seminaries, and in classes collected expressly for hearing lectures on that science. It has recently been introduced to the attention of the children, to whom, like every other branch of natural history, it is particularly agreeable. This, like geology, must, at no distant period, become a branch of common education.

From some cause, which it would not, perhaps, be easy to explain, one subject of Botany has hitherto been almost wholly neglected, both by teachers, and the amateurs of science — the *American Forest Trees*, which foreigners inform us, present the grandest object in the vegetable kingdom. It is not greatly to the credit of American science, that the best and almost the only account we have of our own forests, is from two gentlemen from France, who visited this country for the express purpose of examining this interesting department of nature.

These gentlemen inform us, that in this country, one hundred and thirty trees grow over thirty feet in height; while in France, only thirtyseven rise to an equal elevation, and that but a part of these are natives of their forests.

They have named and described fortyfour different kinds of oaks which they examined. The different species of this genus possess almost every variety of character. They differ greatly in their elevation, texture, strength and durability of timber, shape, size and taste of fruit, color, form and size of leaf, and

every other property belonging to wood. While one species is among the most lofty of the trees which tower in our forests, rising to the height of an hundred feet, another seldom rises more than twenty inches above its surface. The timber of one is almost as hard and durable as iron, while that of another is so loose and open in its texture, as to be classed among the soft woods. The acorns of some oaks are large, extending far out of their cups, palatable to some animals, and even much esteemed by the natives, and are very abundant; while others are small, nearly covered by their envelope, of a bitter taste, with but here and there one upon a tree. The leaves of some are small, others large; some smooth, others deeply indented; some of a dark green, others of a light complexion.

The white oak is the most valuable species in this genus, both in Europe and America. Indeed white oak timber is applied to a greater variety of uses than any other vegetable substance produced upon our globe. Ship-builders, carpenters, manufacturers of agricultural implements, coopers, and numerous other mechanics, find this material nearly indispensable in pursuing their arts. Next to walnut, it is also the most valuable wood for fuel.

This tree has a very extensive range, growing in this country, from Vermont and New Hampshire to Florida.

The live oak has some singular and highly valuable properties, but has a less extensive range and is less abundant than many other species, being confined to the southern districts of the United States and the northern of Mexico. It is exceedingly tight and hard, and this quality, with the branching limbs, of almost every possible shape, fits it for ship-building, for which it is extensively employed, especially in our navy.

Next to the oak, the walnut is the most extensive genus in our forests. In this genus are found two classes, somewhat distinct: the one comprehending the black walnut and butternut; the other all that species known by the general name of hickory.

The two first differ from all the other species of walnut in their timber, leaves and fruit, in all of which they resemble each other. The timber of both is used for many kinds of cabinet work, but the butternut is less valuable for that use than the walnut. The last is almost the only material used for gun stocks, for which purpose it is carried to the different armories in the country. It is procured from Pennsylvania, where it is a native, and grows in abundance. This tree is not known to be a na-

tive of New England, but whenever it is transplanted here from the south, it grows with luxuriance and beauty, and is probably worthy of more extensive cultivation.

The fruit of the black walnut is of a globular shape, inclosed in a husk without incisions, unlike that which envelopes the nuts of the more numerous class under the name of hickory. The husk of the butternut, is also like that of the black walnut, wholly connected, and is not removed except by fracture. The shape of the butternut every one knows to be oval.

The shagbark walnut is the most valuable of the largest class of this genus, both for timber and fuel. For the latter it is more valuable than any other tree growing in the northern or middle states.

Next to the oaks and walnuts, maples, birches, ashes, elms, chesnuts and beeches are among the most interesting trees in American forests.

Art. V. — Middlesex County Lyceum.

[The Journal of Education, for June, 1830, contains some account of the Middlesex County Lyceum, and of a semi-annual meeting then held. We have recently received a record of the proceedings of a meeting held on the 9th instant, accompanied by two reports which were at that time presented. These reports we present to our readers.]

Establishment and Maintenance of Town Lyceums.

REPORT.

The Committee, to whom was referred the question, 'What are the best plans to be recommended to all towns for the *establishment* and *maintenance* of Town Lyceums?' have had that question under consideration, and although not able to offer a report of so definite character as, perhaps, may be expected, respectfully submit the following.

Your committee regret that the gentleman who raised this question, or some other who was present at its adoption, and who might have brought into the committee the particular objects of the mover and the meeting, in relation to it, had not been appointed on that service.

This question asks for the best plans, &c, to be presented. Whether this means two plans only, for the *establishment* and

the other for the *maintenance* of Lyceums, or several plans for each of these purposes, some of which would be best in one place, and others in another, your committee have no certain data for determining.

The question, however, divides itself into two parts; *establishment* and *maintenance*.

With regard to the formation or establishment of 'Town Lyceums,' perhaps something like a uniform plan may be adopted; but for their after-maintenance, by which they presume management rather than pecuniary support, is meant, your committee are decidedly of opinion that no plan could be formed that would be equally applicable, or the best to be recommended to all towns.

As a first step towards the establishment of a Lyceum, a few influential individuals should take it upon them to call a public meeting, at which all classes and denominations should be invited to attend. At this meeting a plain, familiar address should be given, such a one as should exhibit the nature, use, and advantages of Lyceums; their effect upon schools, the manufacturing and mechanic arts, as well as their salutary and more general effect upon the moral and intellectual welfare of the community at large.

At the close of this meeting, both ladies and gentlemen should be invited to unite in the formation of a Lyceum; a committee be chosen to prepare a constitution, and take any other measures they may think necessary; and another meeting should be appointed for the adoption of said constitution.

A constitution like the following, your committee suppose would, in the main, be applicable to the situation and circumstances of most of the towns in this county.

1. This association shall be called the ——— Lyceum.
2. Its object is the promotion of useful knowledge.
3. Any person may become a member by signing this constitution and paying ————.
4. Members under eighteen years of age shall be entitled to all the privileges of the Lyceum, except voting, and be required to pay but ————.
5. This Lyceum shall be auxiliary to the Middlesex County Lyceum.
6. Its officers shall be chosen annually, on the ——— and shall consist of President, Vice President, Treasurer, Secretary, and three Curators, which together shall form a Board of Di-

rection for the general management of the society concerns. There shall be chosen three Delegates to represent this Lyceum in the meetings of the Middlesex County Lyceum.

7. The President, Vice President, Treasurer, and Secretary, will perform the duties usually implied in those offices. The Curators will take charge of the library, apparatus, &c, belonging to the Lyceum; and on them will also devolve the labor of procuring lecturers, and such other measures as may be necessary for sustaining an interest in the meetings.

8. The constitution may be altered or amended by a majority of members present at any annual meeting.

Particular care should be taken to prevent the introduction of party feelings, either political or religious. The Lyceum room should by all be felt to be common ground; a retreat from party strife, where all are in pursuit of one common object, and that object useful knowledge. To this end the officers and lecturers should be taken from all parties in politics and all denominations of religion.

As to that part of the question which relates to the maintenance of Lyceums after they are formed, for reasons already stated, your committee decline offering any definite, fixed plan. They will, however, take the liberty of submitting a few general remarks in relation to this part of the subject.

The possession of a library should be a primary object with all Lyceums. Its extent must, of course, depend on their pecuniary resources. History, biography, voyages and travels, are well calculated to elicit a taste for reading, and impart useful knowledge. Works on science, scientific periodicals, and an encyclopedia will all prove valuable helps to the young inquirer, whether farmer, mechanic, or manufacturer, and should be procured as soon as circumstances will permit. Philosophical and mechanical apparatus for illustrating the arts and sciences, together with large manuscript skeleton maps, diagrams, &c, to aid in the study of geography, astronomy, &c, are valuable appendages to a Lyceum.

A committee should from time to time be raised for the purposes of visiting and inquiring into the state of public free schools, and recommending improvements. Such recommendations might form a very useful and interesting topic of discussion at the Lyceum meetings.

It should be the duty of such committee also to visit schools out of town, and keep themselves well informed as to improve-

ments, whether in books, apparatus, or general modes of managing and instructing schools elsewhere.

This committee should also notice carefully the characteristics of the young members of the Lyceum and where ambition and capacity are developed, lend a helping hand; where a spirit of inquiry is excited, encourage and give it a proper direction.

The meetings of Lyceums should be as often as the circumstances of the society enable its managers to sustain and keep up a lively interest in them. Possibly this may be done in some places for about half the year as often as once a week, in others not oftener than once a fortnight; and probably this is as often as most of the towns in this county, would, on experience, find to be best.

As to the mode of conducting these meetings, your committee are of opinion, that to be useful and interesting it must from time to time be changed.

One object of Lyceums, and the most important one too, is to bring out and put into exercise the thinking and speaking talents of the rising generation.

Familiar discussions are happily adapted to the accomplishment of this desirable object. Questions relating to science, the arts, history, or the most prominent and interesting topics of the day, (provided they do not elicit party feeling) are among the most interesting as well as useful modes of spending an evening.

One of the most common difficulties to be met and obviated in these discussions is, that of the time being engrossed by a few individuals, while the mass of the association are thereby, or by their own diffidence, excluded from taking any part. To avoid this evil, some Lyceums have with good effect been divided into such classes as combine something like an equality of circumstances and age, who hold meetings by themselves, pursuing a course of mutual instruction in relation to some subject or science, or entering on the discussion of such questions among themselves in the first instance as are afterwards to be introduced and discussed in the Lyceum.

Another mode of encouraging the young and diffident, is to permit them to write their views and read them, or hand them to the secretary, to be read by the President, either with or without attaching their names thereto, and in this way giving them an opportunity of learning to swim without going into the water.

The most usual mode of conducting Lyceum meetings has

been by lectures. In most country towns, however, the number of gentlemen qualified to prepare interesting lectures is small, and the number of those who can be made to believe themselves qualified, much smaller. The consequences of this are, that a heavy labor devolves upon a few, and too much of a sameness is experienced in the exercises, which, while it calls for an unreasonable sacrifice on the one part, becomes tedious and uninteresting to the other.

This may in part be obviated by an exchange of labors among lecturers of neighboring Lyceums; and also by appointing more than one individual to speak, or write, and read, upon the same subject on the same evening. Many may be induced to write an essay which may occupy ten minutes in reading, who could not be prevailed upon to undertake a lecture of an hour's length. And this course, on the whole, might be expected to prove quite as interesting, and more useful.

It ought, however, to be remembered that the prosperity and success of a Lyceum do not depend solely on those who take the lead in them, who lecture and engage in discussions. Punctual and uniform attendance of those members who take no part in the exercises, or the want of it will have quite as much of good or bad influence as good or bad lectures would do.

In a word, a Lyceum is a body voluntarily engaged in a mutual effort to assist each other in gaining and imparting knowledge, in which each individual, when he puts his name to the constitution, should resolve to do what he can, as well as he can, whenever he is called upon, whether he deem himself qualified or not.

All which is respectfully submitted,

WILLIAM JACKSON,
JONAS WILDER,
SETH DAVIS,
} *Com.*

Improvements in our Common Schools.

REPORT.

The important subject presented to the consideration of your committee, has ever been, with learned men and free citizens, one of great and constant interest; but never has it excited more universal attention than at the present time. The press is teeming with information in the form of periodical works, reports, essays, or elaborate treatises on the subject of education; men, governed either by a desire to promote their own interest or the

public good, are actually burdening the community with new school books, each claiming some peculiar merit to recommend them to public favor, which was not possessed by their predecessors; and systems of education are adopted in many places, which are represented to be great improvements on those in common use. That great improvements in all these particulars have already taken place, and that the universal inquiry on the subject will elicit others, there can be no doubt; but that all the pretensions by which new school books and new systems of education are brought into public notice, do not render them worthy of public patronage, must be equally true. To judge accurately, and adopt those only which shall be found useful, after the test of experiment, should be the aim of every one who attempts a reformation.

It cannot be expected that the subject, as presented to the consideration of your committee, can be very minutely examined in a single report. In general, we remark, that the great object of education is to bring all our physical, intellectual, and moral powers to the highest perfection of which they are capable; to develope those powers so as to make every individual educate himself; to fit us to perform skilfully and properly the duties of every station in life; and to secure to us the greatest possible happiness on earth, and forever. The family circle and the school room are the places where mind is first formed and receives its direction. The former is of primary importance, and should be well conducted, but is of a private nature; the latter not less important, must be regulated by public opinion and public direction. Your committee are directed to consider this subject under three distinct propositions.

I. '*Whether any, and if any, what measures can be taken to provide for our common schools, teachers of greater talents and more practical knowledge of their profession, than are now generally employed?*'

This proposition presupposes that our common schools have not been supplied with competent teachers. That this is true, even a slight examination into their condition will be a sufficient proof. Persons are too often employed, without character, without a love or knowledge of the profession, unable to govern, and incompetent to teach. Those who have given their attention to this subject, though there are exceptions to the general remark, have found the great majority of the common country schools conducted so as to accomplish comparatively but little good.

These defects, arise, in a great measure, from causes embraced in the subjects submitted to our consideration; unsuitable teachers, ineffectual systems, improper school books, and a total want of apparatus.

Some of the general qualifications requisite to make a good teacher, are, appropriate natural talents, a love of his profession, and a constant endeavor to become better acquainted with it in all its branches; a thorough acquaintance with every branch of knowledge he attempts to teach, and the methods of imparting that knowledge to others, which would make it most easily understood, and most practical in actual life; an address and deportment which inspires confidence and respect, and a systematic energy in all his affairs; a competent knowledge of the powers and faculties of the human mind, and of human nature as it is practically exhibited, to enable him to distinguish accurately those little grades of difference which exist in the minds of children, arising from native defect, habit, prejudice, or education; that real practical religion which produces moral action; a deep conscientious concern for the improvement of his scholars, an habitual sense of the responsibility of his office, the vast influence of his example and instruction, his accountability to that Being in whose presence he acts, and a desire to discharge every duty in such a manner as will be acceptable to Him.

This brief enumeration of some of the characteristics of a good teacher gives to his profession great importance. To attain a thorough knowledge of it requires no ordinary exertion. Those who intend to devote their time to train the human mind to knowledge, and virtue, and happiness, should in the outset possess requisite native talents, and should improve all the means in their power to acquire competent knowledge. And what means can be recommended to enable individuals to obtain this knowledge? 'Seminaries for teachers' have been proposed, but have uniformly proved ineffectual, and, in the present state of society, they are likely to continue so. The best means your committee can recommend, are, 1. Practical lectures on the subject of education, exhibiting different methods of instruction, to be delivered in our high schools and academies, or before conventions called for the purpose. This method of communicating knowledge on this subject, has already been adopted in various places with the brightest prospect of usefulness. 2. Approved practical writers on the subject of education should be carefully read, and the methods recommended tested

by experiments. The Education Reporter, edited by Mr Rand, the Annals of Education, by Mr Woodbridge, periodical works published in Boston, and Hall's Lectures on School Keeping, should be in the hands of every teacher. 3. Visiting different schools which are conducted on approved models, and carefully observing and adopting useful ideas and methods. A model school, organized in every town, would be productive of much good. Teachers may, however, possess requisite qualifications, but unless school committees are judges of school keeping, and understand and discharge their duties with intelligence and faithfulness, our schools cannot be improved. Great care ought to be taken, in all towns, in the choice of school committees, and when chosen, they ought to be as anxious to obtain a competent knowledge of practical education as teachers themselves. The best means, therefore, your committee would recommend to provide for our schools competent teachers, are, that school committees and teachers should attend conventions where lectures are given, read judicious works on the subject, visit approved schools, and especially think and improve their own methods by inventing and trying experiments themselves. By a judicious attention to these sources of information, a person who possesses natural talents may readily acquire the requisite information.

II. '*Whether the method in which our schools are generally conducted, may not be improved by introducing a modification of the system adopted in schools of mutual instruction, and in infant schools?*'

One of the greatest evils attendant on the present system of conducting our schools, is the want of that pleasant, constant, and profitable employment which would always bring forward the whole energies of the children. Much time is spent in useless confinement. Habits of idleness and inattention are thus formed, which are the greatest barriers against progress in the expansion of the powers of the human mind. That system, therefore, which tends to remove these great and radical defects, should be encouraged. Some essential changes are necessary, before our schools shall accomplish all that they might accomplish. The system of mutual instruction, though adopted several years since, in many populous towns, is comparatively unknown in the interior of New England. The principles of this system, however, wherever known, have been generally approved. We are not of the opinion that it would be expedient to introduce it

in all its parts at once. In the first place, our school houses are built without taste or much convenience for any school, and are more especially unfitted for one of this kind; and our teachers are generally unacquainted with it. But where houses will admit of it, and where teachers can be obtained who understand the system, there is not the least doubt that the adoption of a part of its principles, modified to meet the circumstances of the several schools, would be attended with the greatest advantages. On this subject we speak from personal observation and experience. By this system a greater number of scholars are taught with equal ease, each scholar is more constantly employed, and the instruction is more practical. The same remarks apply to the system of infant school instruction, in its application to our primary schools taught by females. If it should be partially introduced into these schools it would do much good. We earnestly recommend to teachers and school committees, to make themselves acquainted with these systems of instruction. No one could visit some of the most approved infant schools, the monitorial school in Boston under the care of Mr William B. Fowle, or that of Mr Wells, at South Boston, without deriving great pleasure and profit.

III. '*What apparatus is it desirable should be introduced into our schools; and what series of books can be confidently recommended, that would facilitate their improvement?*'

With regard to apparatus, your committee think it important that every scholar should be furnished with requisite books, and a slate and pencil. There should be in every school room a large black board, a manuscript alphabet, a map of the district, town, and state, and such other geometrical blocks and diagrams as may be necessary for the full illustration of the several exercises of the scholars. In teaching numbers, an arithmeticon or counters; in length, a rule a foot or yard long; in weight, a pair of steelyards, or a set of weights; in measure, a set of measures; in time, a dial, &c, &c, are essential. After they are explained, something should be shown the children, and they should be required to guess its length, its weight, its measure, &c, that their judgment might be cultivated. All these and many other articles, which the experience of an ingenious, energetic teacher will suggest, are easily made by himself or the scholars, or procured at a trifling expense. The objects of nature around us should always, when practicable, be brought in to aid illustrations. The vegetable, the mineral, the animal

kingdom, the heavens above, the earth beneath, and the world within us, afford abundant material for this purpose. A child's mind cannot be directed to too many objects of this kind. A great remissness prevails among school-committees, and especially teachers on this subject. They have not been aware of the great use which may be made of these natural and artificial tools in cultivating the mind.

Reading, spelling, pronunciation, and defining, should be taught together. Books in a regular, systematic series, from the simple to the more difficult, adapted to the capacity of those for whom they are intended, printed on a type, paper, and in a style that would please children, and each calculated for teaching all these branches, ought to be preferred. To commit columns of words in a spelling-book, without definitions, and unintelligible to children, or definitions in a dictionary, without an association of ideas with those definitions, is nearly useless. The child's progress should not be impeded by a labyrinth of mysteries, but every step should be made intelligible, that it may be pleasantly and quickly taken.

There are few branches in which our schools are more deficient than in Penmanship. Our teachers, generally, are entirely unqualified to instruct in this department, and the habits the children acquire under their superintendence, are almost universally bad. The idea that a child should not begin to write till it arrives to a certain specified age is altogether incorrect. It cannot begin too early to make letters, draw diagrams, or imitate other objects of sight with a slate and pencil. After just ideas of letters are thus obtained, he may more readily acquire the use of the pen, and an easy, rapid style of writing. We would recommend the universal use of slates for young children, good printed copies for older ones, and the writing of select pieces of composition for the oldest in our schools. Connected with this subject, the drawing of maps, and the elementary principles of linear drawing, may with propriety be recommended.

In teaching arithmetic and the elementary principles of Mathematics, the first object should be to give a just idea of number; and each successive step, from the simple to the more difficult, in teaching their combination, should be made perfectly intelligible by frequent simple illustrations, as in other branches, by verbal explanations, operations on the black board, or by other sensible objects. Taught in this manner, no science is better calculated to strengthen the reasoning powers of children, and

no age is too young for commencing its acquisition. While, however, we disapprove of the old system of written arithmetic, we do not approve of laying it aside entirely. Rules should be laid down as the *result* of certain mental operations. A knowledge of this science, it seems to us, can be best acquired by a combination of the two systems. Every child, that can answer a question mentally, ought also to be able to do it equally quick and correct by writing the operation at length on the black board or slate. The study of Book Keeping and the elementary principles of Algebra and Geometry, are strongly recommended to the most forward scholars in our common schools.

In Geography, the first step in a family should be to show a child a plan of its own dwelling-house, and by familiar conversation, describe its several parts, and then require the child to do it. A plan of the district or town should be in every school, and be described in like manner. Such plans of objects which a child has seen, are easily understood, and are necessary to prepare him to obtain just ideas of county, state, or other maps. Geographical and Astronomical definitions, which usually precede the study of descriptive geography in our school-books, are out of place. This science is almost universally taught to young children; and with them, that system which shall begin at home, regularly advance, and shall define each new principle which it meets, will be most successful. The lessons should always be illustrated by diagrams on the black board or slates. As soon as the scholar is sufficiently advanced, he should be required to draw maps on paper. The science of Astronomy should follow that of Geography, and it cannot be successfully taught without diagrams, copious illustrations on the black board, or apparatus.

Grammar, taught according to the common system, is productive of very little practical good. A mere knowledge of parsing does not give a person the use of language. The inductive method, which commences with learning to express the most simple and proceeds to the more complex ideas, arriving at just rules for their construction at each step of its progress, seems to be the most natural, in gaining a knowledge of language. The scholar should be required to make the application of every rule, *in writing*, not merely in the examples laid down in his text book, but in describing other objects. In classes sufficiently advanced, the committee here recommend that rhetoric and logic, the history of the United States and its civil and polit-

ical institutions should be studied. As we believe no book has hitherto existed on the last subject, it is proper to mention that Sullivan's Political Class Book is expressly adapted to this object.

Your committee would recommend that it be one of the daily exercises of the teacher to read a select portion of the Bible before his scholars; and they ought to be taught to regard it not as an ordinary book, but as a divine revelation of truth.

If all school-committees would require of the teachers in each district to keep records of their schools, specifying the name, age, parent's, master's, or guardian's name, when admitted, when left, days attendance, absent, and tardy, and progress of every scholar, general remarks on the system of instruction pursued, &c, it would be of great general benefit. An abstract from these returns might be made and transmitted to the county Lyceum or some other channel, through which it might go to the public. This system has already had a very favorable influence in our towns where it has been adopted, and the influence elsewhere, we have no doubt, would be the same. It furnishes the best report for a town school-committee which ought annually to be made.

Your committee might remark on other branches sometimes taught in our schools, and enlarge on those already adverted to, but sufficient has been said to call the attention of this Lyceum and the public to evils in our common school system, which

'To be hated, need but to be seen.'

Respectfully submitted in behalf of the Committee,

LEMUEL SHATTUCK, *Chairman.*

Concord, Nov. 6th, 1830.

ART. VII. — SCIENTIFIC TRACTS.

[Prepared for the Annals of Education.]

Scientific Tracts, designed for Entertainment and Instruction, and adapted to Lyceums, Schools, and Families. Conducted by JOSIAH HOLBROOK and others. ***Vol. I., Nos. I. and II.**** Boston: Carter and Hendee. 1830.

A SHORT notice of this series of tracts, illustrated by an extract, was given in a previous number of the Journal. They

* Since the preparation of this article, No. III. has appeared.

are designed to meet the wants of the great mass of the community, and purport to be intended for companions in families, visiters to schools, and instructers to lyceums. To accomplish in the most effectual manner the objects proposed, it will be necessary to enlist a variety of talent, and to exhibit in a most popular and practical manner, subjects in every department of useful knowledge. The plan does not contemplate complete systems of the abstract sciences, or the writing of learned treatises, which it requires long study to comprehend; but to present to the public, devoid of technicalities, the most instructive and useful points, connected with the physical sciences, natural history, mathematics, astronomy, political economy, agriculture, and the mechanic arts. The two first numbers, on the Atmosphere, and Geology, the publishers need not hesitate to recommend to their subscribers as specimens of the plan they will pursue.

Aside from our views of the general utility of these tracts, we wish to present a few thoughts on the importance of calling the attention of the community to the subject of the second number. Men have always searched with great cupidity after those mineral treasures on which universal demand has stamped a value; and yet, very little interest has been felt, until within a short period, in the manner of their occurrence, or in anything relating to the internal structure of the earth.

Chemistry, botany, astronomy, *all* the physical sciences, except that of geology, have been long and successfully cultivated; but, till within fifty years, this had scarcely arrested the attention of philosophers. In our own country, the attention to this science has been still more recent. Our statesmen and philosophers, who entered the scenes of public life before it became a requisite of liberal education, might now receive instruction form many of the pupils of our infant schools. Our predecessors no more thought of establishing professorships of geology, than of phrenology, and had they been so disposed, there were no text books from which to obtain any correct ideas of the system.

A change has within a few years taken place for the better, but in no degree to the extent which the subject demands. It is only in a few of our colleges, that the professor of natural history is required or chooses to give lectures to his pupils on geology; and to the graduates of these few, an acquaintance with it has been almost entirely confined. In our common

schools and academies, youth are instructed in almost every other branch of education but this, all of them, indeed, studies of positive utility, so far as they discipline and strengthen the mind. In consequence of this neglect, not only is the name of this science generally unknown, but the idea of any attention to the earth, disconnected with the pursuits of agriculture, would be considered absurd. The curiosity and the ridicule bestowed on geological surveyors and mineral collectors might afford an apt illustration of this remark. A geologist in a retired town, engaged in his examination of rocks, is often surrounded by a collection of individuals, eyeing him with contempt, pity, or suspicion. One of them, perhaps, more intelligent than the rest, has heard of these 'stone-seekers,' and laughs at his foolishness in expending time and money in hammering on ledges and stone walls. Another, more ignorant, conjectures him to be a man of deluded mind, whose mania is the search after some philosopher's stone; while it is not unfrequently the case that the owner of the territory examined, imagines that the mineralogist has discovered some precious stone or metal upon his lands, and is filled with solicitude lest he should lose some of the fancied treasure.

There is another class of facts which strikingly illustrates the prevailing ignorance of geology. The successful discovery, in various parts of our country, of valuable earths, rocks, and metals, has prompted a spirit of ignorant examination in districts where they had not been hitherto found. And how often, as the fruits of such attempts, or of chance discovery, are scientific men presented, sometimes with a mysterious solemnity, with common specimens, which the owners considered invaluable. One uncovers a two inch diamond, represented by a crystal of quartz; another is rich with a specimen of silver ore, changing, by the talismanic touch of the philosopher, into shining mica; and again, an untold weight of gold, in the form of iron pyrites, proves that 'all is not gold that glitters.' But these are instances in which the ludicrousness of the facts blinds us to the blameable cause of ignorance. Reference can be made to facts involving greater interests, where serious errors and losses arose from a want of information which education might have easily supplied. Great expense has at times been incurred by individuals in pursuit of 'treasures of the earth,' supposed, with or without reason, to exist concealed, because they know other people have mined and obtained wealth, or because, as they avow,

they have actually obtained specimens of the mineral they seek. In one town in New England, on the strength of this last reason, a thousand dollars were expended to reach the vein of a tin mine; and although told that but one crystal had been found in the United States of the ore, yet they had no doubt their specimens of tin-colored mica, were indicative of a tin mine. Of the same class of mistaken expenditures on false promises, are the numerous attempts to find mineral coal, where it is indicated by nothing but dark rock or earth. In one of the largest towns in Vermont, the inhabitants have expended several thousand dollars in boring for a salt spring, upwards of one thousand feet, through solid rock, to obtain salt from strata, which the most superficial student in geological formations could have told them never would yield it. The laws of Massachusetts themselves show that in one instance at least, the misplaced enthusiasm of some, had obtained an act of incorporation for a company with a capital of eighty thousand dollars, to prosecute the working of a silver mine.

These instances have been cited only to exhibit the state of society on the subject of geology, and by no means to throw ridicule on those who have generously shown their disposition as far as instruction was afforded them, to bring forth for the public, what they believed had been bestowed by the hand of Providence. They should, however, serve as examples to excite the community to reflect on the propriety of an increased general attention to the subject. It is not sufficient that its light should be in the hands of scientific men; entire ignorance has never relied and cannot rely on the opinions of mere philosophers. Some instruction in the science should be communicated to every class of the community, and in a science so highly practical in its effects, there are not wanting motives to stimulate very many to the necessary exertion. All classes of builders, the agriculturist, the miner, and the artist, can successfully apply it to their occupations.

With a conviction of the truth of these views, of the importance of geological knowledge, we hope some friends of general education, have been prompted to inquire, how shall it be disseminated? It may be done cheaply and expeditiously in these three ways: 1. By personal examination of a cabinet of minerals: 2. By attending lectures before lyceums: 3. By the perusal of some popular treatise. And these three objects can be gained by the following methods. A collection of one hundred simple mine-

rals with their compounds, is amply sufficient to give a general knowledge of geology, and these specimens can be obtained in Boston, labelled and described, for less than twenty dollars a set. It is not necessary to obtain an immense collection of all the varieties of the mineral creation in the world, but simply the common minerals, the knowledge of which, by critical examination of their external character and physical properties, may be employed to actual advantage; a small collection of such being of infinitely greater value to a learner, than an extensive cabinet, containing only the uncommon and costly minerals that have been but rarely formed in the laboratory of nature, and the value attached to which is in the inverse ratio of their practical utility. As we cannot have lectures before lyceums without lecturers, it ought to be considered the duty of the teacher of some school in each town or some other intelligent man, to make himself acquainted with the science, by the study of the principal works on the subject, and prepare a course of half a dozen lectures, to be delivered before the lyceum, at the same time exhibiting specimens to be passed around the hall during his discourse. And, what will be more *generally* efficient than this, there should be published a popular text book for schools, comprising a complete system of the structure of the earth, with a description of the rocks. The author of such a work should endeavor to keep himself free from all theoretical and technical language, not present any peculiar views, or endeavor to establish hypotheses for the support of a party. Teachers should make it the ally and companion of school books on natural philosophy and chemistry, illustrating the whole by specimens; and publishers should afford it at a cheap, reasonable rate, to give it a greater circulation, making it accessible to all classes.

Possessing these views of this science, we cordially greet this tract on geology as an entering wedge, and as one means of rendering its study universally popular. Some persons are deterred from the perusal of such tracts, by uncommon, forbidding names; but we presume those for whom this tract was intended, who can be induced to read it, will be stimulated to learn something more of those interesting *facts*, to inquire for a work more systematically arranged. Every item of knowledge gained by individuals is so much gain to the community. *Knowledge is power.* 'There is no kind of information, however trivial, that is to be despised, and if I could know, without

trouble, the position of the highest stone on Chimborazo, I should say, let me know it, and the knowledge may be at some time turned to account.' Let it be the aim of educators and instructers, to impart to those with whom they are connected, as great an amount of information on all the physical sciences as possible; and may our population be able to understand the poet when he finds

> 'Tongues in trees, books in the running brooks,
> Sermons in stones, and good in everything.'

Art. VIII. — Epitome of Universal Geography.

An Epitome of Universal Geography, or a Description of the various Countries of the Globe, with a view to their Political Condition at the present Time; with sixty Maps. By Nathan Hale. 12mo. pp. 404.

Few men in our country, we are persuaded, are better qualified to write a work of the kind described in this title, than Mr Hale. We need such a work, frequently reprinted, from some one like this gentleman, familiar with passing political events, if it were only to supply the chasms and correct the errors of the larger works, whose early volumes must be out of date, before the later ones are printed; for even the present work already requires some changes. We regret that the author has not added the tables referred to in the preface; but in its present form, as *a recent, correct, and convenient manual for reference*, we think that it deserves a place in every study and every family; and its cheapness, and the insertion of sixty wood cut maps, will render it acceptable to many. In adapting it for *reference*, however, we conceive it is rendered unsuitable for *instruction*. The first book on Geography should proceed by an induction of particulars. But in a later and more complete course of study, (and in such a course only can this work be employed,) facts should be traced to causes and combined into principles. To accustom the pupil to look upon the earth merely as its kings have parcelled it out among themselves, to speak of mountains, and rivers, and climates, and vegetables, and animals as belonging to one of these arbitrary divisions, varying with every revolution and every treaty, and to keep out of view in this way, the original and immutable boundaries and charac-

ter which the Creator has established in the various portions of the globe, is to give imperfect, disjointed, and often false views of this important subject. It separates facts naturally connected. It unites the most dissimilar. It accustoms the pupil to that *association by juxtaposition*, which is characteristic of immature and uncultivated minds, which leads them to connect objects merely because they are near each other, and often lays the foundation for habits of incorrect reasoning. It does nothing to promote the development of the reason, or the habit of investigation, or the discipline of the mind, for which Geography may be so happily employed; and would deprive our schools of almost the only exercise which is not merely mechanical, and which is made to subserve these great ends of education.

Wood cut maps were used for illustration in the 'System of Universal Geography' published in 1824, and measures were taken for preparing a complete set on the plan of this work. But the project was laid aside, chiefly from the conviction of the importance of seeing countries as much as possible in their connexion and comparative size; but in part also from the difficulty of giving to these maps that precision and beauty which are desirable in a school-book. Both difficulties we think will be found connected with the *maps* of the work before us, if used for instruction; though we still consider these also a useful present to those who cannot procure larger works for *reference*. For this purpose, and in aid of our Lyceums, we believe Mr Hale's work deserves, and will gain, an extensive circulation.

Art. IX.—State of Education in Russia.

Perhaps no country in the world presents us with refinement and barbarism in a more singular contrast than Russia. Through the kindness of a friend, we have been allowed to extract the following sketch of the state of education there, from a valuable work by Schintzler, recently published at Paris, entitled *Statistique et Itineraire de Russie*. It will serve as some consolation, perhaps, in contrast with the views we are compelled to give of our own country.

In Petersburg, Moscow, Odessa, and Riga, the traveller finds every important branch of science, art, industry, and luxury; but in the country generally, there is every state of society, down to absolute barbarism. The number of well-educated persons is very small, and chiefly merchants, nobles, and foreigners. Peter the Great gave the first impulse to literature, and caused types to be founded for printing in a new and improved character. He established fiftyone schools for the common people. Catharine II. founded one hundred and fifty more. Alexander, one hundred and forty, besides other institutions. Thirteen thousand two hundred and fortynine Russian works have been published, one third of which are translations. In 1800, there were only one thousand. In 1815, sixtyone presses printed five hundred and eightythree works in different languages. The knowledge of the Russians is, to a great extent, acquired by imitation more than by invention, and therefore it is generally superficial rather than solid. They are acquainted with numerous languages.

The peasantry are plunged in ignorance, and consequent indifference to improvement. The inhabitants of Little Russia are superior to the rest.

The sciences are in a very flourishing state, in the hands of foreigners patronised for this purpose by the government, some of whom, as Euler, Klaproth, Palas, Kotzebue, and Adelung, are among the most celebrated men of Europe. The arts are also in a good state.

The Libraries are, the Imperial Library, containing three hundred thousand volumes and thirteen thousand manuscripts; the Hermitage Library, one hundred thousand; that of the Academy of Sciences, one hundred thousand; the Marble-Palace Library, thirty thousand; the Imperial Library of Moscow, thirty thousand. There are botanic gardens at St Petersburg, Moscow, Wilna, Dorpat, and Govenki. There are also a number of literary, agricultural, and philanthropic societies.

For the purpose of education, Russia is divided into seven districts, each containing a university, under the direction of a curator, all of which are subject to the minister of instruction. They contain about three thousand students. Wilna and Dorpat are the most distinguished.

The following table exhibits the number of professors and students in each.

Places.	*Prof.*	*Stud.*
Wilna,	42	927
Dorpat,	39	363
Helsingfors, (formerly at Abo),	40	338
Moscow,	59	820
Kharkof,	43	337
Kasan,	34	118
St Petersburg,	38	51

Besides these universities, there are numerous superior seminaries for law, theology, medicine, and classical learning. The Pedagogical Institution at St Petersburg, is on the same footing with the universities. The students have three courses, each of which occupies two years, the last, devoted to pedagogical science. Theology is taught at Kiev, Moscow, St Petersburg, Kasan, and in fiftyfive seminaries, containing in all, twentysix thousand pupils, and four hundred and twentyseven professors.

There are also schools for the military sciences, and the Oriental languages, for mines, forests, naval affairs, commerce, the arts, and other special objects. The military schools contain three thousand pupils, and the school of navigation, thirty. The schools for teaching the arts are one hundred and thirtytwo in number.

There is a certain number of gymnasia in each district, amounting in all to fiftyfive, and many other secondary schools. There are two hundred and fortyseven private boarding schools, subject to the control of the university, thirtyeight of which, are at St Petersburg, and thirtyone at Moscow. The whole number of primary district schools is intended to be five hundred and eleven, but not more than one third are in existence. There are others established by regal or private munificence, of the same character. There are also schools for forming elementary teachers. The elementary or parish schools, are multiplying, but are far below the necessities of the country in general. They are the most numerous in the Baltic provinces, and among the German colonists on the Volga. The latter, fiftyseven thousand in number, have eleven thousand children at school.

The government of Wilna has the most schools, and next, that of Livonia, which contains one hundred and fourteen schools and four thousand one hundred and twelve pupils, for a popula-

tion of seven hundred thousand, or one to one hundred and seventy souls. Yenisseisk is the darkest province, and has but two schools and eightyone pupils, in a population of one hundred and thirtyfive thousand, or one to sixteen hundred persons.

	Inhab.	*Schools.*	*Pupils.*
Irkutsk contains,	400,500	6	9,245
Orenburg,	1,043,500	5	259
The public establishments contain, . . .			69,269
The clerical schools, ...			45,851
Amount, ...			115,110

The whole number of pupils, including private establishments, may amount to one hundred and fifty thousand, or one in three hundred and sixtyseven. Three millions of rubles are paid annually for public instruction.

The number of periodicals which have appeared, are two hundred and thirty, of which seventythree now exist in twelve different languages. The Abeille du Nord, probably has the most subscribers. The nobility pride themselves in rivalling other countries in cultivation, and they often surpass foreigners in manners and refinement. They consider it no degradation to cultivate the arts and sciences themselves, and they are beginning to attend to the improvement of the lower ranks. The peasantry are advancing in civilization, and the number of free laborers is increasing.

NOTICES.

A School Dictionary of Selected Words according to the Orthography of Webster, with a Key to Etymology, being Introductory to a System of Practical Analysis. By Aaron Ely. New York. 1830. 18mo. pp. 140.

The principal object of this work is to present to the pupil a *selection* of words to be committed to memory. There is some difference of opinion among teachers in regard to the expediency of teaching definitions at all in this way. The method is however extensively practised, and a selection like this must greatly promote the objects aimed at, where the plan is pursued. The appendix seems to us quite valuable. It contains, in the first place, a list of the most important prefixes in our language, with their definitions; such as *ad*, *ac*, *as*, *pre*, *pro*, *sub*, &c. These are arranged and defined in

such a manner as to be easily understood and remembered by the pupil. There follows, then, a considerable number of *primitive words*, with the various derivations coming from them, by their combination with these prefixes. They are arranged in the following manner. It will be observed that the first column, marked D. gives the definition of the prefix; the second, the prefix itself; the third, the form of the verb; the fourth, that of the noun; and the fifth, that of the adjective.

SPIRO. Latin, to breathe, to throw out gently.

D.	P.	V.	N.	A.
in	in	spire	*ation*	ed.
again	re	spire	*ation*	ory
through	per	spire	*ation*	ory
with	con	spire	*acy*	ing
to	a	spire	*ation*	ing
beyond	tran	spire	*ation*	ing

Dictionary of Chemistry, containing the principles and modern theory of the science, with its application to the arts, manufactures, and medicine. For the use of seminaries of learning and private students. Translated from 'Le Dictionnaire de Chimic approuvé par Vauquelir.' Including the most recent discoveries and doctrines of the science, with additions and notes, by Mrs Almira H. Lincoln, vice-principal of Troy Female Seminary, author of 'Familiar Lectures on Botany.' New York. 1830. 12mo. pp. 531.

This work was prepared by the translator at the request of Professor Eaton of the Rensselaer school. We cannot give a better evidence of its scientific character, than the remarks of Professor Silliman, who styles it 'a learned, judicious, and able performance,' and expresses his belief, 'that it will answer a valuable purpose, both to the learners and teachers of the science.' The style is what it should be, in a work of this kind — very concise, and yet clear and accurate. The sketch of elementary chemistry at the end, is executed in the same manner, and the whole is highly creditable to a translator engaged in the labors of a seminary so extensive as that of Troy.

Tales of Travels west of the Mississippi. By SOLOMON BELL, Late Keeper of the Traveller's Library, Province-House Court, Boston. With a Map and numerous Engravings. Boston. 1830.

This book furnishes useful and entertaining reading for a class of readers whom it is rather difficult to suit, — youth just beginning to feel that their minds are above what commonly go under the name of juvenile books, and who are in search of something fitted to gratify a more manly and rational taste.

Narrative writing is decidedly the most attractive to the young mind, and when combined with description, as it is in the relations of travellers, its interest is greatly enhanced. There is much unobtrusive instruction emanating from such forms of composition. The love of nature is thus silently cherished, a general sympathetic interest in the condition and the welfare of man is strengthened in the young mind, and a preparation made for the exercise of active benevolence. Romance is here enjoyed without the question-

able aid of fiction. The imagination moves in ideal worlds, without losing its relish for real and useful employment.

The plan adopted by the author of this work, seems to promise much interesting and useful reading to the young, in a form well suited to juvenile taste. We hope the enterprise will prove as successful as it is meritorious.

Mathematical Tables; comprising Logarithms of Numbers, Logarithmic Sines, Tangents and Secants, Natural Sines, Meridional Parts, Difference of Latitude and Departure, Astronomical Refractions, &c. Stereotype edition. Boston. 8vo. pp. 80.

The above is the title of a very neat volume lately published by Carter & Hendee. The want which it is likely to supply, has been long felt by mathematical students and teachers, who have often been obliged, with the greatest inconvenience, to make one set of tables serve a whole class, thus rendering almost unavoidable, an ignorance of the mode of finding logarithms, and a want of that expertness in using them which nothing but practice can give. So long as Navigation, Surveying, indeed so long as *numbers* exist, logarithmic tables must be in use, and the accuracy and despatch with which calculations in the different branches of mathematics can be made, depend, of course, upon the accuracy and convenient arrangement of the tables employed.

It is not sufficient that they should be appended to folios and quartos of mathematical works, in so expensive a shape as to be accessible to very few students.—A manual is wanted, like the one before us, which contains all the tables necessary in the most complex calculations, in a thin octavo of 80 pages.

One prominent superiority which these tables have over many in use among us, is, that the logarithms are carried to seven decimal places instead of five, a difference materially affecting the accuracy of a result in an extended operation. In the tables of the logarithms of numbers, sines, cosines, &c, are columns of differences between the logarithm of one number or angle and the succeeding, which are not to be found in tables generally, and which save the student much necessary labor. The explanations in the introduction, of the mode of finding and using logarithms are very clear and distinct. In the table of Meridional parts also, there is a great improvement upon most tables in use. The student need not be told, that arcs of Meridians, in Mercator's chart, differ according to their distance from the equator, that is, all the Meridians being made parallel, and the parallels of latitude, of course, equal, in order to preserve the true relation between them, the meridional arcs are increased in a certain ratio.—These meridional arcs, in the Mathematical Tables are reduced to geographical miles for every *minute* of latitude—in many tables this is done for every *ten* minutes.

The Fourth Class Book, containing Lessons on Reading for the Younger Classes in Schools. Second edition. pp. 136. 18mo.

The Child's Guide, comprising Familiar Lessons designed to aid in Correct Reading, Spelling, Defining, Thinking and Acting. pp., 178. 18mo.

The title of the last work points out the objects which we think should be kept in view in forming reading books for children; and we have seldom seen books so well adapted to them. They describe *subjects* which children can

comprehend, in *language* which they can *understand*, — and can scarcely fail to interest and instruct, and what is more important, to exert a happy moral influence.

The Fourth Class Book we have known used with success. The Child's Guide we think obviously superior in its plan and execution.—We hope the sale of both will justify the introduction of engravings, which we think ought to accompany every reading book for children, not merely to excite their interest, and call their faculties into exercise, but to give additional instruction to supply in part the defects of description, and to cultivate their taste. We trust the time has come when their value is understood, and the price cheerfully paid for those of the best kind.

Viri Romæ; with Introductory Exercises, intended as a First Book in the study of Latin; with English Notes. By Frederic P. Leverett and Thomas G. Bradford. Boston: 1830. 12mo. pp. 209.

This volume furnishes an important and hitherto inaccessible aid to the teaching of Latin, — a book containing a course of elementary praxis, originally and expressly adapted to Adams' Latin Grammar. It comprises also a simple course of narrative reading in pure and uniform style, adapted to young learners. Copious and instructive notes are added, containing grammatical and other explanations for the solution of sentences and their appropriate translation. The book concludes with a full vocabulary of proper names for the elucidation of the text.

A dictionary appended to the volume, and embracing every word contained in the body of the work, would, in our opinion, have been a useful aid to the pupil. But, on the expediency of affording such assistance, teachers, we are aware, are not agreed.

By the publication of this and other works, the instructers of the Public Latin School of Boston have conferred a valuable favor on classical teachers generally. An entire course of school reading will, we hope, be furnished, ere long, from the same source. Suitable books to be used between the Viri Romæ and Cæsar, are much needed.

C. Crispi Sallustii de Catalinæ Conjuratione Belloque Jugurthino Historiæ — Animadversionibus illustravit Carolus Anthon Lit. Graec. et Lat. in Col. Coll. N. E. Prof. Adj. Novi Eboraci. 1829.

We are glad to see a new and improved edition of such an author as Sallust. We think there is reason for congratulating the friends of sound classical learning, that a series of editions of the most important classic authors has been gradually making its appearance in our country, which, for accuracy in the text, for fulness of illustration and adaptation to the purposes of education and to the powers of the young mind, will compare with any that have appeared. We allude to the works edited by Gould, Leverett, Anthon and others. The plan which combines the most advantages, that of explaining every important difficulty in English notes, translating only the hardest passages, and levying contributions on the history, mythology, manners and laws of the ancients, to clear up a doubtful passage, and lead the young mind pleasantly onward in the study of language by connecting it with all its auxiliaries, seems only to have been acted on within a few years. We believe that this system will do much to lighten the toil and to illuminate the conceptions of the scholar, and as a secondary consequence to induce many individuals to extend the sphere of their reading in ancient authors.

We will go farther, and say, if we had editions of all the classics used in our preparatory schools and colleges, prepared on a similar plan and with equal fidelity to those we have named, this single circumstance would form a new era in the annals of learning in America, and increase in an equal ratio the clear understanding of authors who have, by common consent, held the highest place in the ranks of sound and elegant literature for many centuries, and the interest for the study of these precious relics of former ages.

We have seen no edition of Sallust which satisfied us equally with this of Anthon. We think it will add to his reputation for erudition, research and industry, and be a most valuable acquisition to all our academies and high schools.

Selections from the Holy Scriptures, intended as Sabbath Exercises for Children. Part I. Devotional Extracts. pp. 88.

This little work, designed to be the first of a series, comprises devotional extracts from the Psalms. The writer believes, and we think very justly, that the *material of devotion* ought to be supplied in the lesson given to children more generally than it is, and alludes to the singular fact, that those who are termed Dissenters in England, are almost the only Christians who have not made the devotional portion of scripture an essential part of their public worship. The extracts are accompanied with brief but valuable explanatory notes. But the most important peculiarity of this work is the restoration of the text to the original form, by exhibiting the poetic parallelisms in distinct lines as in the following example.

> O come let us sing unto the Lord
> Let us make a joyful noise to the Rock of our salvation
> Let us come before him with thanksgiving
> And make a joyful noise unto him with psalms.

This method of arrangement is so necessary to exhibit the meaning as well as the beauty of biblical poetry, that it ought always to be understood and explained by teachers, and the poetical parts of the Bible should be read by scholars, so far as practicable in the way of response. We are surprised indeed that an edition of the Bible has not been published on this plan; and we believe that a collection of those poetical books, which have been re-translated with a reference to the parallelisms, would be a most valuable present to the libraries of Sunday schools, as well as of private Christians. We think the author of the present work has done an important service in calling the attention of teachers to this subject and we trust the effort will not be without success. We think, however, that some of the Psalms selected are not entirely adapted to the capacity of children, and we hope that those containing imprecations will be omitted in a future edition.